

REMARKS

Claims 1-8 are pending and stand ready for further action on the merits.

Rejections 35 U.S.C. § 112

Claims 1-8 are rejected under 35 U.S.C. § 112, first paragraph. Specifically, the Examiner has taken the position that Applicant's amendment to the claims which indicates that both the outside layer and the rust-proof film "have a thickness of greater than 0 nanometers up to and including 10 nanometers" constitutes new matter.

The Examiner believes that the specification describes the outside layer as being 10 nanometers or less and the rust-proof film as being 10 nanometers or less. Based on this understanding of the specification, the Examiner believes that the combination of the outside layer and the rust-proof film should have a total thickness of 20 nanometers or less.

Applicants respectfully traverse for the following reasons:

Applicants respectfully submit that the outside layer and the rust-proof film occupy essentially the same space, and as such, the thickness range of 10 nanometers or less refers to both the outside layer and the rust-proof layer and not each as independent layers.

In support of this position, the Examiner's attention is directed to the disclosure in the specification on page 6, lines 26-30 which includes the following teachings:

[b]ased on the researches by the present inventors, the thickness of the oxide layer should be limited to 10 nm or less measured from the surface of the foil material, so as to prevent the decrease of adherence. In a case that a rust-proof layer is present, its thickness should also be limited to 10 nm or less measured from the surface of the foil, as well. (Emphasis added).

As can be seen from the above-statement, both the outside layer and the rust-proof layer are measured "from the surface of the foil". Both the formation of the outside layer and the rust-proof layer are formed by treatment of the copper alloy at the surface. The outside layer is formed by annealing (see page 7, line 27). Also, the rust-proof layer is formed by adding a nitrogen-containing agent such as benzotriazole (see page 6, line 22). Since the oxygen and nitrogen enter the foil by migration from the surface, it is clear that both the outside layer and the rust-proof film occupy essentially the same space. Since the outside layer and the rust-proof film occupy essentially the same space, it is clear that the thickness range of 10 nanometers or less as measured from the surface of the foil refers to both the outside layer and the rust-proof layer and not each as independent layers.

Furthermore, the Examiner's attention is directed to Figure 1 and the description of Figure 1 as described on page 7, lines 5*. Figure 1 is a graph of data obtained using Auger electron

spectroscopy. On the horizontal axis ("x" axis) of this graph, is a profile of the copper alloy film in a thickness direction. The 0.0 point on the "x" axis is the surface of the copper alloy film. As can be seen from the point in the graph, the oxygen and nitrogen are at relatively high concentrations. The concentrations of oxygen and nitrogen then decrease in a direction from the surface to the interior.

Based on the foregoing, Applicants respectfully submit that the specification clearly sets forth that the outside layer and the rust proof film occupy the same space. Accordingly, Applicants' amendment to the claims which indicated that both the outside layer and a rust proof film "have a thickness of greater than 0 nanometers up to and including 10 nanometers" does not constitute the addition of new matter to the disclosure.

As such, Applicants were in possession of the invention as described in the presently amended claims at the instant priority date and withdrawal of the rejection is respectfully requested.

Drawings

This application was filed with one sheet of drawings. However, the Examiner has not indicated whether the drawings are acceptable. Applicants respectfully request that the Examiner indicates whether the drawings are acceptable in the next communication.

Conclusion


In view of the above comments, Applicants respectfully submit that the claims are in condition for allowance. A Notice to such effect is earnestly solicited.

If the Examiner has any questions concerning this application, he is requested to contact Garth M. Dahlen, Ph.D., Esq., (#43,575) at the offices of Birch, Stewart, Kolasch & Birch, LLP.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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